



LIGHT GUIDE

BACKGROUND OF THE INVENTION

1. Field of the Invention:

The present invention relates to a light guide and, more particularly, such a
5 light guide practical for use in a small personal item having light means.

2. Description of the Related Art:

Small personal items with light means such as light pens, mini flashlights, light
key-rings, etc. are commercially available. These items commonly have a lighting
circuit formed of a battery, a bulb, and a press-button switch. When switched on the
10 press-button switch, the bulb is turned on to emit light. Different colors of bulbs may
be used to emit different colors of light. These items can be used as a company's
gifts to its employees as well as clients. Previously, the inventor invented a similar
design, which is a light pen that comprises a lighting device mounted in the
penholder, and a cylindrical light guide fastened to the pen cap and aimed at the
15 lighting device. The light guide in the previous invention is molded from transparent
plastics, having longitudinally extended light guide holes. When turning on the bulb,
light passes from the bulb through the light guide holes of the light guide, producing
a light column that attracts people eyes. This design of light guide is still not
satisfactory in function. Because the light guide is a solid plastic member, it is
20 difficult to put a design inside the light guide. When putting a design inside the light
guide, the molding cost is high.

SUMMARY OF THE INVENTION

The present invention has been accomplished under the circumstances in view. It is therefore the main object of the present invention to provide a light guide, which eliminates the aforesaid drawbacks.

5 According to one aspect of the present invention, the light guide comprises a light guide element, and a plurality of optical fiber disposed inside of said light guide element for forming at least one light passage in between two ends of said light guide element.

10 According to another aspect of the present invention, a message is put upon the light guide element after molding the light guide element. The message can be a logo, sign, graphic device, blurb, etc. subject to clients' requirements.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a light pen mounted with a light guide according to the present invention.

15 FIG. 2 is a schematic drawing showing the light guide connected to the lighting device according to the present invention.

FIG. 3 is a cross sectional view in an enlarged scale of the cap of the light pen shown in FIG. 1.

FIG. 4 is an elevation view of a light guide according to the present invention.

20 FIG. 5 is a top plain view of the light guide element for the light guide according to the present invention.

FIG. 6 is a cross sectional view of the light guide according to the present invention.

FIG. 7 is a top plain view of the light guide element for the light guide according to the present invention after branding of the message.

5 FIG. 8 is a cross sectional view of the light guide according to another embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 4, a light guide is comprised a light guide element 1, and a plurality of optical fiber 2 disposed inside of said light guide element 1 for forming at least one light passage 3 in between two ends of said light guide element 1. Wherein, the light guide element 1 is example but not limited to be made of transparent material, having a smooth outer surface. The plurality of optical fiber 2 is disposed inside of said light guide element 1 and made by molding method within the light guide element 1, preferably.

15 A message 4, for example, "GOLDEN RIGHT" is put upon the smooth surface of the light guide element 1 (see FIG. 7). Therefore, light passages 3 are formed in the light guide between the two ends of the light guide element 1 (see FIG. 6). Furthermore, the smooth surface of the light guide element 1 also could be masked by certain material and then put the message 4 upon said light guide element (see 20 FIG. 8). Furthermore, the message 4 further comprises a twinkling function so as to increase the visibility of the light guide.

FIGS. 1~3 show the light guide used in a light pen. The light guide is mounted in the inside chamber of the pen cap 6 of the light pen (see FIG. 3). At the left side

of the light guide is provided a lighting device 5, which is comprised of a battery 501, a press-button switch 502, and a bulb 503. When switched on the press-button switch 502, the bulb 503 is turned on to emit light toward the light passages 3 of the light guide, and therefore the message "GOLDEN RIGHT" is illuminated. The light
5 pen can be used as a gift of a company to its employee or client.

In the aforesaid embodiment, the light guide element 1 can be rectangular plates, half-round bar, and triangular bar. Alternatively, the light guide shaped like a rectangular plate, cylindrical bar, or prism.

The message 4 can be printed on the smooth surface of the light guide
10 element, or put upon the smooth surface of the light guide element 1 by a hot iron.

In the aforesaid application example, the light guide is used in a light pen. Alternatively, the light guide can be used in a flashlight, or a light key-ring.

Although particular embodiments of the invention have been described in detail for purposes of illustration, various modifications and enhancements may be
15 made without departing from the spirit and scope of the invention. Accordingly, the invention is not to be limited except as by the appended claims.